

**REMARKS**

***Status of the Claims***

Claims 1-3 and 5-23 are pending, with claims 1 and 23 being independent. Claims 1 and 21-23 have been amended to even more clearly recite and distinctly claim particularly preferred embodiments of the present invention. Support for the amendments may be found throughout the specification, including in the original claims. Therefore, no new matter has been added. Claim 4 has been canceled without prejudice to or disclaimer of the subject matter contained therein.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

***Claim Rejections Under 35 U.S.C. § 103***

Claims 1-10, 12-18, and 21-23 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,183,561 ("Kresge") in view of U.S. Patent No. 6,476,086 ("Zhou"). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

Kresge discloses a process for demetallizing hydrocarbon feedstocks, such as resids or shale oil, which uses a catalyst comprising at least one hydrogenation metal, such as nickel and molybdenum, and an ultra-large pore oxide material, which may have uniformly large pores, e.g., having a size of about 40 Angstroms in diameter. (Abstract). Kresge discloses heavy oils, petroleum resdua, and bitumen derived from tar sand or oil shales as containing metals which are poisonous to the catalysts used in refining processes. (Column 3, Lines 45-48). Kresge discloses nickel, vanadium, iron, copper, zinc and sodium as these metal contaminants that may be removed from the feed. (Column 18, Lines 31-35).

Zhou relates to a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes by contacting and/or mixing the slurry with a coalescence enhancing treating solution to facilitate gravity separation and settling of such catalyst, and thereby yield a substantially clean hydrocarbon liquid/wax product. (Abstract). Zhou discloses that the treating solution includes a surface tension reducing agent, an agglutinating agent, and a coalescing agent, each in selected proportions in aqueous solution. (Abstract). Zhou is cited as disclosing filtration techniques used to separate solid contaminants from Fischer Tropsch derived streams.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

Applicants respectfully submit that there is no suggestion or motivation, either in Kresge or Zhou, or in the knowledge generally available to one of ordinary skill in the art, to combine Kresge and Zhou. As provided above, Kresge relates to a process for demetallizing (i.e., removing nickel, vanadium, iron, copper, zinc and sodium) heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales. In contrast, Zhou relates to a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes. Applicants respectfully submit that the process for demetallizing heavy oils, petroleum resdua, or bitumen of Kresge is quite different than the process for separating catalyst fines from a Fischer Tropsch product of Zhou. Applicants respectfully submit that the petroleum derived hydrocarbon product of Kresge is quite different than the Fischer Tropsch derived hydrocarbon product of Zhou. One of skill in the art would recognize that a petroleum derived hydrocarbon product, as disclosed in Kresge, has a different composition and different contamination concerns than a Fischer-Tropsch product, as disclosed Zhou. As such, Applicants respectfully submit that metal contaminants of Kresge are quite different than the catalyst fines of Zhou.

Therefore, Applicants respectfully submit that there is no suggestion or motivation to combine any feature of the process for demetallizing (i.e., removing nickel, vanadium, iron, copper, zinc and sodium) heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales of Kresge with the process for removing catalyst fines from a Fischer Tropsch slurry product of Zhou.

The Office merely appears to be picking and choosing steps of two distinct processes in an attempt to arrive at the claimed method for removing contamination comprising Al from a Fischer-Tropsch derived hydrocarbon stream. A reference must be viewed as a whole for what it teaches. “[I]t is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly

suggests to one of ordinary skill in the art.” *In re Wesslau*, 353 F.2d 238, 241, 147 U.S.P.Q. 391, 393 (C.C.P.A. 1965); *see also Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1986).

Applicants further respectfully submit that there is no reasonable expectation of success in combining Kresge and Zhou. As provided above, Kresge relates to a process for demetallizing (i.e., removing nickel, vanadium, iron, copper, zinc and sodium) heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales. In contrast, Zhou relates a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes. Also as provided above, the composition of the petroleum derived product and hence its metal contaminants of Kresge are quite distinct from the composition of the Fischer Tropsch product and hence its contaminants as disclosed in Zhou. Accordingly, Applicants respectfully submit that there is no reasonable expectation of success in combining any feature of the process for demetallizing the product of Kresge with the process for removing catalyst fines from a Fischer Tropsch product of Zhou. Without an expectation of success in combining features of Kresge with Zhou, such a combination is improper and results in impermissible hindsight.

Moreover, Applicants respectfully submit that even if there were some suggestion or motivation to combine Kresge and Zhou and a reasonable expectation of success, Kresge and Zhou, even when combined, do not disclose or suggest all the claim limitations. Even if combined, Kresge and Zhou do not disclose or suggest a method of removing **contamination comprising Al** from a Fischer-Tropsch derived hydrocarbon stream. As described above, Kresge discloses a process for removing nickel, vanadium, iron, copper, zinc and sodium from heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales and Zhou discloses a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes. Accordingly, even if combined, Kresge and Zhou do not disclose or suggest filtering a Fisher-Tropsch derived hydrocarbon stream to produce a filtered hydrocarbon stream, wherein the filtered hydrocarbon stream comprises **contamination comprising Al** and passing the filtered hydrocarbon stream to a catalytic filtering zone, the catalytic filtering zone containing a catalyst comprising at least one metal selected from the group consisting of Group VI and Group VIII elements at conditions sufficient to remove at least a portion of the contamination

comprising Al from the filtered hydrocarbon stream, thus forming a purified hydrocarbon stream.

Therefore, for at least the above-noted reasons, Applicants respectfully request that the obviousness rejection of claims 1-10, 12-15, 16-18, and 21-23 over Kresge in view of Zhou be withdrawn.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Kresge in view of Zhou, and further in view of U.S. Patent No. 5,989,412 (“Okagami”). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed. Claim 11 depends on claim 1 and further limits claim 1 by specifying the catalyst is configured as a hollow cylinder.

As described above, Kresge relates to a process for demetallizing (i.e., removing nickel, vanadium, iron, copper, zinc and sodium) heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales. Also as described above, Zhou relates a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes.

Okagami a hydrodemetallizing catalyst for a hydrocarbon oil. Okagami is cited as disclosing a hydrodemetallizing catalyst having a cylinder shape.

As described above, Applicants respectfully submit that the presently claimed process is significantly different than the process of Kresge. Also as described above, Applicants further respectfully submit that even if there were some suggestion or motivation to combine Kresge and Zhou and a reasonable expectation of success, Kresge and Zhou, even when combined, do not disclose or suggest all the present claim limitations. Okagami is cited merely as disclosing a hydrodemetallizing catalyst having a cylinder shape. As cited, Okagami fails to cure the many above-noted deficiencies of Kresge in view of Zhou. Accordingly, Applicants respectfully submit that even if combined, Kresge in view of Zhou further in view of Okagami does not disclose or suggest the presently claimed method of removing **contamination comprising Al** from a Fischer-Tropsch derived hydrocarbon stream. Even if combined, Kresge in view Zhou and further in view of Okagami do not disclose or suggest filtering a Fisher-Tropsch derived hydrocarbon stream to produce a filtered hydrocarbon stream, wherein the filtered hydrocarbon stream comprises **contamination comprising Al** and passing the filtered hydrocarbon stream to a catalytic filtering zone, the

catalytic filtering zone containing a catalyst comprising at least one metal selected from the group consisting of Group VI and Group VIII elements at conditions sufficient to remove at least a portion of the contamination comprising Al from the filtered hydrocarbon stream, thus forming a purified hydrocarbon stream.

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claims 16, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Kresge in view of Zhou, and further in view of U.S. Patent No. 2,877,257 ("Cain"). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

As described above, Kresge relates to a process for demetallizing (i.e., removing nickel, vanadium, iron, copper, zinc and sodium) heavy oils, petroleum resdua, or bitumen derived from tar sand or oil shales. Also as described above, Zhou relates a method for separating iron-based catalyst fines from hydrocarbon liquid/wax/catalyst slurry for Fischer-Tropsch synthesis processes.

Cain relates to a process for the purification of hydrocarbon solutions of oxygenated organic compounds comprising acids and which also may contain dissolved or occluded metal contaminants such as *iron or iron compounds*. (Column 1, Lines 15-19). Cain discloses that the contaminated hydrocarbon organic chemical mixture can be the product produced by synthesis when carbon monoxide and hydrogen are reacted with a *promoted iron catalyst*. (Col. 1, Lines 26-36). Cain discloses that the product produced from such a process contains dissolved or occluded metal contaminants such as iron or iron compounds. (Col. 1, lines 51-54). With regard to the purification process, Cain discloses that a crude hydrocarbon synthesis oil is washed with an aqueous acid solution and this washing step is repeated until no brown precipitate is produced on the addition of a suitable base to the acid extract. (Figure 2 and Column 2, Lines 19-25). Cain is cited as disclosing a process of removing contaminants including metals from a hydrocarbon feed by contacting the hydrocarbon feed with an acidic stream in an extractive column.

As described above, Applicants respectfully submit that the presently claimed process is significantly different than the process of Kresge. Also as described above, Applicants further respectfully submit that even if there were some suggestion or motivation to combine

Kresge and Zhou and a reasonable expectation of success, Kresge and Zhou, even when combined, do not disclose or suggest all the present claim limitations. Cain is cited merely as disclosing removing contaminants including metals from a hydrocarbon feed by contacting the hydrocarbon feed with an acidic stream in an extractive column. As cited, Cain fails to cure the many above-noted deficiencies of Kresge in view of Zhou. Accordingly, Applicants respectfully submit that even if combined, Kresge in view of Zhou further in view of Cain does not disclose or suggest the presently claimed method of removing **contamination comprising Al** from a Fischer-Tropsch derived hydrocarbon stream. Even if combined, Kresge in view Zhou and further in view of Cain do not disclose or suggest filtering a Fischer-Tropsch derived hydrocarbon stream to produce a filtered hydrocarbon stream, wherein the filtered hydrocarbon stream comprises **contamination comprising Al** and passing the filtered hydrocarbon stream to a catalytic filtering zone, the catalytic filtering zone containing a catalyst comprising at least one metal selected from the group consisting of Group VI and Group VIII elements at conditions sufficient to remove at least a portion of the contamination comprising Al from the filtered hydrocarbon stream, thus forming a purified hydrocarbon stream.

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

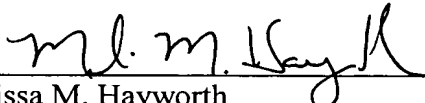
### ***Conclusion***

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim particularly preferred embodiments of Applicants' invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing amendment and remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone the undersigned attorney concerning such questions so that prosecution of this application may be expedited.

Respectfully submitted,

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